SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT Distribution authorized to U.S. Government Agencies Only; Administrative or operational use; April 1991. Other requests for this document shall be referred to Commander, DTRC, Code 2713.
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) DTRC/PAS-91/14	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION David Taylor Research Center 6b. OFFICE SYMBOL (*If applicable*) Code 2713	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (*City, State, and ZIP Code*) Bethesda, Maryland 20084-5000	7b. ADDRESS (*City, State, and ZIP Code*)
8a. NAME OF FUNDING / SPONSORING ORGANIZATION Office of Naval Technology 8b. OFFICE SYMBOL (*If applicable*) ONT 211	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (*City, State, and ZIP Code*) 800 N. Quincy St. Arlington, VA 22217-5000	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. 62121N PROJECT NO. RH21E41 TASK NO. 2 WORK UNIT ACCESSION NO. 1-2700-212

11. TITLE (*Include Security Classification*)
DTRC Matrix Converter Topology Effort

12. PERSONAL AUTHOR(S)
James Baker, Lloyd Powell, Terry Ericsen

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (*Year, Month, Day*)	15. PAGE COUNT
Interim	FROM 10/89 TO 12/90	April 1991	

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (*Continue on reverse if necessary and identify by block number*)
FIELD	GROUP	SUB-GROUP	High Frequency Synthesis, Matrix Converter Variable Speed Motor Controller, Frequency Changer

19. ABSTRACT (*Continue on reverse if necessary and identify by block number*) This report describes an electronic power converter, which produces three-phase, alternating-current (AC) power of controllable frequency, phase sequence, power factor, and voltage from a three-phase, AC power source. This converter is suited for use as an AC variable speed motor controller, frequency converter,etc

The converter derives its capabilities from the microprocessor-controlled, high-frequency switching of semiconductor devices. These devices directly interconnect the input and output ports of the converter. As a result of high frequency switching and direct power conversion, no larger reactive elements or rectification/inversion sequences are required as they are in most mother power converters.

A laboratory model of the converter has been built and tested. This report includes the results of this testing.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT. ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED
22a. NAME OF RESPONSIBLE INDIVIDUAL Terry Ericsen	22b. TELEPHONE (*Include Area Code*) 301-267-3123 22c. OFFICE SYMBOL Code 2713

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted. All other editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE

☆ U.S. Government Printing Office: 1986—606-24